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Washington, D.C. 20548

Resources, Community, and  
Economic Development Division

B-277902

September 2, 1997

The Honorable Federico Peña  
The Secretary of Energy

Subject: Results Act: Observations on the Department of Energy's August 15, 1997, Draft Strategic Plan

Dear Mr. Secretary:

In July 1997, you requested our support for the Department's goal of ensuring the success of the strategic plan you are developing under the Government Performance and Results Act of 1993. In response to a congressional request, we provided our assessment of your June 16, 1997, plan in July 1997.<sup>1</sup> Following this assessment, the Department revised its plan, and your Office of Strategic Planning, Budget and Program Evaluation asked us to comment on the August 15, 1997, revision.

Overall, we believe that the current draft plan is much improved over the June 16, 1997, draft. Specifically, the revised draft now includes all six elements required by the Government Performance and Results Act. However, we are still concerned that some of the strategies and many of the measures do not appear to be results-oriented.

Enclosures I through III highlight some selected aspects of three of the Department's four business lines and the business lines' related objectives, strategies, and measures. These comments focus on issues on which we have previously reported. Enclosure I focuses on our concerns about the Department's efforts to reduce the vulnerability of the U.S. economy from disruptions in oil supplies. Enclosure II focuses on our concerns about the Department's efforts to strengthen nuclear nonproliferation efforts and improve international nuclear safety. Enclosure III focuses on our concerns

<sup>1</sup>Results Act: Observations on the Department of Energy's Draft Strategic Plan (GAO/RCED-97-199R, July 11, 1997).

GAO/RCED-97-248R DOE's Revised Draft Strategic Plan

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about the Department's efforts to reduce the risks from the environmental legacy of the U.S. nuclear weapons program. We believe, on the basis of the work that we have previously conducted, that additional opportunities exist to improve the Department's plan for these three business lines. However, we did not discuss DOE's fourth business line—science and technology—because our July 1997 report laid out our concerns about this business line. These concerns have not changed. We believe that the Department's strategic plan does not address the potential for the unnecessary overlap that its science mission may have with those of other federal agencies.

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We are providing copies of this letter to the Members of Congress who requested our earlier report on the Department's draft strategic plan: the Majority Leader, House of Representatives, and the Chairmen of the House Committees on the Budget, Government Reform and Oversight, and Appropriations. In addition, we are sending copies to the Ranking Minority Members of the same Committees. We will also send copies to others on request.

Please call me at (202) 512-3841 or Jeffrey Heil on (202) 512-7206 if you or your staff have any questions about this letter.

Sincerely yours,



Victor S. Rezendes  
Director, Energy, Resources,  
and Science Issues

Enclosures - 3

COMMENTS ON DOE'S AUGUST 15, 1997, DRAFT STRATEGIC PLAN  
FOR THE ENERGY RESOURCES BUSINESS LINE

DOE's strategic goal for the energy resources business line focuses on the Department's promotion of secure, competitive, and environmentally responsible energy systems that serve the needs of the public. To address this goal, DOE has identified five objectives supported by multiple strategies and measures. The following comments focus on the first objective and its strategies and measures where we believe that our past reports suggest a different approach.

Objective 1. "Reduce the vulnerability of the U.S. economy to disruptions in energy supplies."

GAO'S COMMENTS

DOE sets the stage for and defines the energy security issue on page 1 of its draft by stating that

". . . there have been three major oil disruptions in the past 23 years. . . . By 2010, U.S. oil imports are expected to grow to 60 percent of domestic consumption, and the Persian Gulf nations will likely provide more than 70 percent of the world's oil exports, surpassing their peak of 67 percent in the embargo year of 1974. This is unacceptable."

However, our December 1996 report on the vulnerability of the U.S. oil supply<sup>2</sup> observed that in today's world oil market, replacing oil imports with domestically produced oil would only marginally lower the potential costs of disruptions because oil prices are set in the global marketplace and the price for all oil rises during disruptions. Even if the United States were to produce all of the oil it consumes, as long as the domestic economy is integrated into the world economy and oil prices are set in the marketplace, oil disruptions anywhere in the world will have substantial effects on the U.S. economy.

The previous administration's 1991 National Energy Strategy also recognizes this point by stating

"Popular opinion aside, our vulnerability to price shocks is not determined by how much oil we import. Our vulnerability to oil price shocks is more directly

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<sup>2</sup>Energy Security: Evaluating U.S. Vulnerability to Oil Supply Disruptions and Options for Mitigating Their Effects (GAO/RCED-97-6, Dec. 12, 1996).

linked to: (1) how oil dependent our economy is; (2) our capacity for switching to alternative fuels; (3) reserve oil stocks around the world; and (4) the spare worldwide oil production capacity that can be quickly brought on line."

Barring a catastrophic disruption during which oil is not available in the world marketplace at any price, we observed that the economic costs of oil price shocks depend largely upon the rise in the price of oil coupled with the nation's level of oil consumption, rather than on the level of imports. We also observed that while the economic costs of disruptions are large, the overall economic benefits of importing oil from its cheapest source are even larger.

Under the first objective in the energy resources business line, DOE presents six strategies and related measures. For example, the first strategy requires DOE to support research and development, policies, and improved regulatory practices capable of ending the decline in domestic oil production before 2005. Furthermore, one of the measures of success requires DOE to demonstrate four advanced production enhancement technologies that could ultimately add 190 million barrels of domestic reserves, including 30 million barrels during fiscal years 1998 and 1999.

As we pointed out in our 1996 energy security report, however, these measures are not a very useful indicator of how DOE's programs will affect the economy's vulnerability to oil supply disruptions because they are not expressed in terms that measure vulnerability. Neither do they consider projected increases in the demand for oil and other expected changes in the economy that could affect vulnerability.

Our report analyzed six measures of vulnerability to oil disruptions that we believe would better focus DOE's efforts in achieving its energy security goal: (1) concentration of world oil production, (2) excess world oil production capacity, (3) oil intensity of the U.S. economy, (4) oil dependence of the U.S. transportation sector, (5) world oil stocks, and (6) dependence of the U.S. economy on oil imports. However, for the reasons cited above, we reported that the sixth measure is a weak indicator of vulnerability and cannot stand alone.

COMMENTS ON DOE'S AUGUST 15, 1997, DRAFT STRATEGIC PLAN  
FOR THE NATIONAL SECURITY BUSINESS LINE

DOE's strategic goal for the national security business line focuses on the Department's efforts to maintain U.S. national security, promote international nuclear safety, and reduce the global danger from weapons of mass destruction. To address this goal, DOE has identified seven objectives supported by multiple strategies and measures. The following comments focus on the fifth and seventh objectives and selected strategies and measures where we believe our past reports suggest a different approach.

Objective 5. "Continue leadership in policy support and technology development for international arms control and nonproliferation efforts."

Strategy 1. "Strengthen the nuclear nonproliferation regime through support of treaties and international agreements."

Measure. "Identify long-term strategies to address the future safeguards, storage, and disposition of the Democratic Peoples Republic of Korea spent fuel within the scope of the Agreed Framework."

GAO'S COMMENTS

This measure is too broad and undefined to measure DOE's success in supporting the U.S./North Korean Agreed Framework. Specifically, it does not define what is meant by "identify long-term strategies" for storing, safeguarding, and disposing of North Korea's spent fuel. Ideally, the measure should be tied to desired outcomes. However, if DOE cannot develop an outcome measure, it should identify (1) a specific number of realistic strategies for each of the three areas and (2) a time frame for identifying the strategies. The measure should also be structured in a manner that would preclude DOE from simply holding a meeting, brainstorming possible strategies, and declaring its success. For example, as discussed in our June 1997 report, strategies or options for disposing of North Korea's spent fuel are already known.<sup>3</sup> What is really needed are decisions about (1) who will be responsible for the spent fuel once it is removed from North Korea, (2) the method of disposal, (3) the party responsible for implementing the disposal method, and (4) the fuel's final destination.

Additional detail is also needed to define the specific strategies DOE intends to identify. For example, the Agreed Framework specifies that the United States and North Korea will

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<sup>3</sup>Nuclear Nonproliferation: Implementation of the U.S./ North Korean Agreed Framework on Nuclear Issues (GAO/RCED/NSIAD-97-165, June 2, 1997).

cooperate in the safe storage of spent fuel for North Korea's experimental reactor. Barring unforeseen difficulties, DOE plans to complete the repackaging of the fuel later this year. While DOE plans to conduct monitoring and maintenance of the spent fuel in the years ahead, since the fuel will have been stored, it is unclear what, if any, storage strategies will be needed.

A similar point can be made for safeguarding and disposing of North Korea's spent fuel. DOE's performance measure implies that under the Agreed Framework, DOE has a clearly defined role in these areas when, in fact, it does not. Thus, DOE may be assuming responsibilities that it will never have. While DOE could become involved, the performance measure fails to recognize the importance of other parties in achieving success in these areas. For example, under the Agreed Framework, the responsibility for safeguarding the fuel rests with the International Atomic Energy Agency (IAEA). As a result, any long-term strategies would need to be developed with—if not largely by—the IAEA. DOE's role in disposing of North Korea's spent fuel is equally unclear. According to the State Department, numerous parties, including the relevant U.S. agencies; the countries of Japan, South Korea, and North Korea; IAEA; and the international consortium created to implement portions of the Agreed Framework could be involved in the disposal decision.

Strategy 2. "Work with the states of the former Soviet Union and others to minimize the risks of proliferation."

Measure. "Discourage the states of the former Soviet Union from reprocessing spent fuel by enabling the use of dry cask storage in those countries in FY [fiscal year] 2000."

#### GAO'S COMMENTS

Enabling the use of dry cask storage in the countries of the former Soviet Union by fiscal year 2000 does not contribute to minimizing the long-term risks of proliferation. It is an interim storage measure which does not necessarily reduce the risk of diversion of fissile material. Generally, dry cask storage is used in the interim between the period when spent fuel need no longer be stored in a pool (wet storage) and when it can be moved on for final disposition. However, one option for final disposition that still remains is reprocessing (a process that yields plutonium that may be used in a nuclear explosive), a result that DOE wants to avoid.

Objective 7. "Improve international nuclear safety."

Strategy 1. "Assist countries in reducing the risks from Soviet-designed nuclear power plants and implement a self-sustaining nuclear safety improvement program capable of reaching internationally accepted safety practices."

Measure. "Establish, in FY 1999, reactor plant operator training programs at key plants based on the Systematic Approach to Training methodology used in the United States and provide plant simulators for operator training."

#### GAO'S COMMENTS

In our 1994 and 1996 reports, we discussed performance measures as a way for DOE to gauge improvements in its international nuclear safety program.<sup>4</sup> As noted in our 1994 report, DOE told us that it did not yet know how to measure the safety improvements made with U.S. assistance. In our 1996 report, we recommended that DOE develop a strategic plan that (1) clearly linked the program's goals and objectives to performance measurements and (2) provided well-defined time frames for completing the program.

Specifically, this measure would be more appropriately stated as a strategy. The associated success measure might be the number of operators trained, objective evidence that they have achieved the level of competence intended, and evidence that a sufficient number can be trained to have a positive impact on the safety of the plants. We agree that well and appropriately trained plant operators can be positive contributors to plant safety. However, just having a training program is not enough. The trainees must be examined and selected or rejected depending on how well they can perform. In addition, DOE should establish benchmarks that show, in a measurable way, the impact of the training. DOE will not have achieved success until operators are demonstrably trained.

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<sup>4</sup>Nuclear Safety: International Assistance Efforts to Make Soviet-Designed Reactors Safer (GAO/RCED-94-234, Sept. 29, 1994), and Nuclear Safety: Status of U.S. Assistance to Improve the Safety of Soviet-Designed Reactors (GAO/RCED-97-5, Oct. 29, 1996).

COMMENTS ON DOE'S AUGUST 15, 1997, DRAFT STRATEGIC PLAN  
FOR THE ENVIRONMENTAL QUALITY BUSINESS LINE

DOE's strategic goal for the environmental quality business line focuses on the Department's efforts to clean up the environmental legacy of nuclear weapons and civilian nuclear research and development programs, minimize future waste generation, safely manage nuclear materials, and permanently dispose of the nation's radioactive wastes. To address this goal, DOE has identified six objectives supported by multiple strategies and measures. The following comments focus on the first and sixth objectives and selected strategies and measures where we believe our past reports suggest a different approach.

Objective 1. "Reduce the most serious risks from the environmental legacy of the U.S. nuclear weapons complex first."

GAO'S COMMENTS

While this objective is a valid and important program goal, its achievement cannot be determined because DOE has not identified priorities across its various sites. As we reported in 1995, DOE's cleanup strategy has been shaped by site-specific environmental agreements without consideration of other agreements or available resources.<sup>5</sup> To enable DOE to allocate its resources to reducing the greatest environmental risks, we recommended that DOE set national priorities and initiate discussions with regulators to renegotiate milestones in agreements according to national priorities. Without an overall prioritization of the risks to be addressed, the Congress will not be able to determine whether this objective has been achieved, nor will the Department be able to target its resources in order to ensure the achievement of this objective.

Objective 6. "Maximize the beneficial reuse of land and effectively control risks from residual contamination."

Measure. "Submit to Congress future use plans for the Hanford Site, Savannah River Site, Rocky Flats Environmental Technology Site, and Idaho National Engineering and Environmental Laboratory by May 1998."

Measure. "Develop future use plans for all other major DOE sites in conjunction with stakeholders."

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<sup>5</sup>Department of Energy: National Priorities Needed for Meeting Environmental Agreements (GAO/RCED-95-1, Mar. 3, 1995).



GAO'S COMMENTS

Neither of these measures address how DOE will maximize the beneficial use of land and would be more appropriately stated as strategies. Furthermore, the National Defense Authorization Act for Fiscal Year 1997 requires that final future use plans be developed for the listed four sites by March 15, 1998. As we reported in 1994, a future use report was completed for DOE's Hanford Site in December 1992, and the Savannah River, Rocky Flats, and Idaho sites were beginning at that time to develop land use plans with citizen involvement.<sup>6</sup> DOE reported in April 1996 that 15 of the 20 sites that intend to develop future use plans had completed their recommendations at that time, including Savannah River, Rocky Flats, and Idaho.<sup>7</sup> Unless subsequent events have required that the land use plans be re-visited, we believe that they could be completed and submitted earlier than May 1998 and should meet the time frame specified in the fiscal year 1997 authorization act. In addition, to make the second measure more effective, DOE needs to specify the time frame for the completion of the use plans and number of sites to be studied.

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<sup>6</sup>Nuclear Cleanup: Completion of Standards and Effectiveness of Land Use Planning Are Uncertain (GAO/RCED-94-144, Aug. 26, 1994).

<sup>7</sup>Charting the Course: The Future Use Report (DOE/EM-0283, Apr. 1996).



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